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(54) **Method and apparatus for programming programmable controllers and generating configuration data from a centralized server**

(57) A method and system for generating programming code and/or configuration data for programmable controller and the networks on which they operate is disclosed. In one embodiment, programming code is generated on a centralized server having a web-enabled engineering tool. The engineering tool operates on client devices that are in communication with the server over a network, such as the Internet. Preferably, the engineering tool runs in a browser application (or other net-

work-interfacing-application) on the client device and a user generates the programming code on the server with the aid of the client device. By centralizing the engineering tool, which may contain a configuration editor and a configuration management tool having version management functionality, a new business paradigm for providing engineering tool services to customers having programmable controllers is provided. In addition, new methods and tools for collaborative engineering of programming code are enabled.

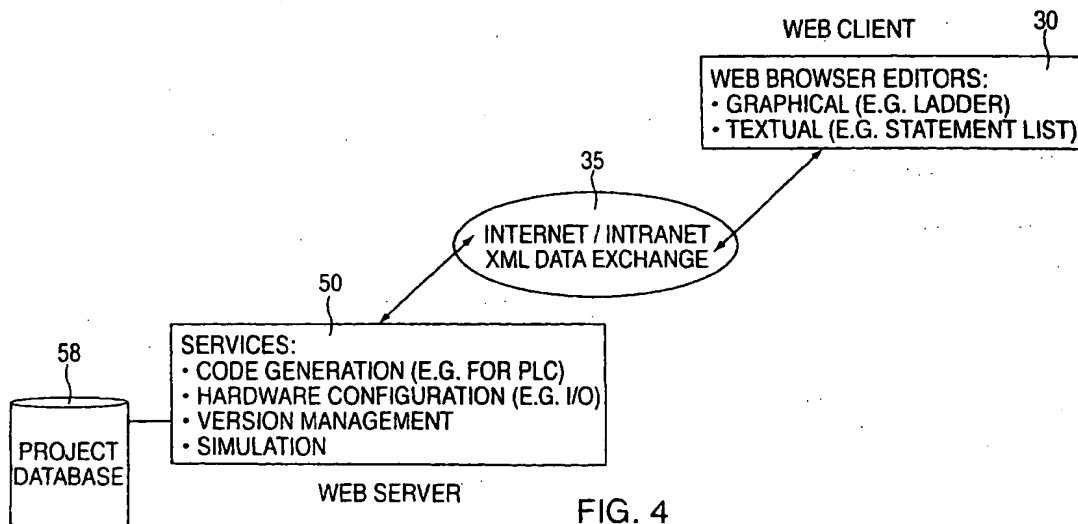


FIG. 4

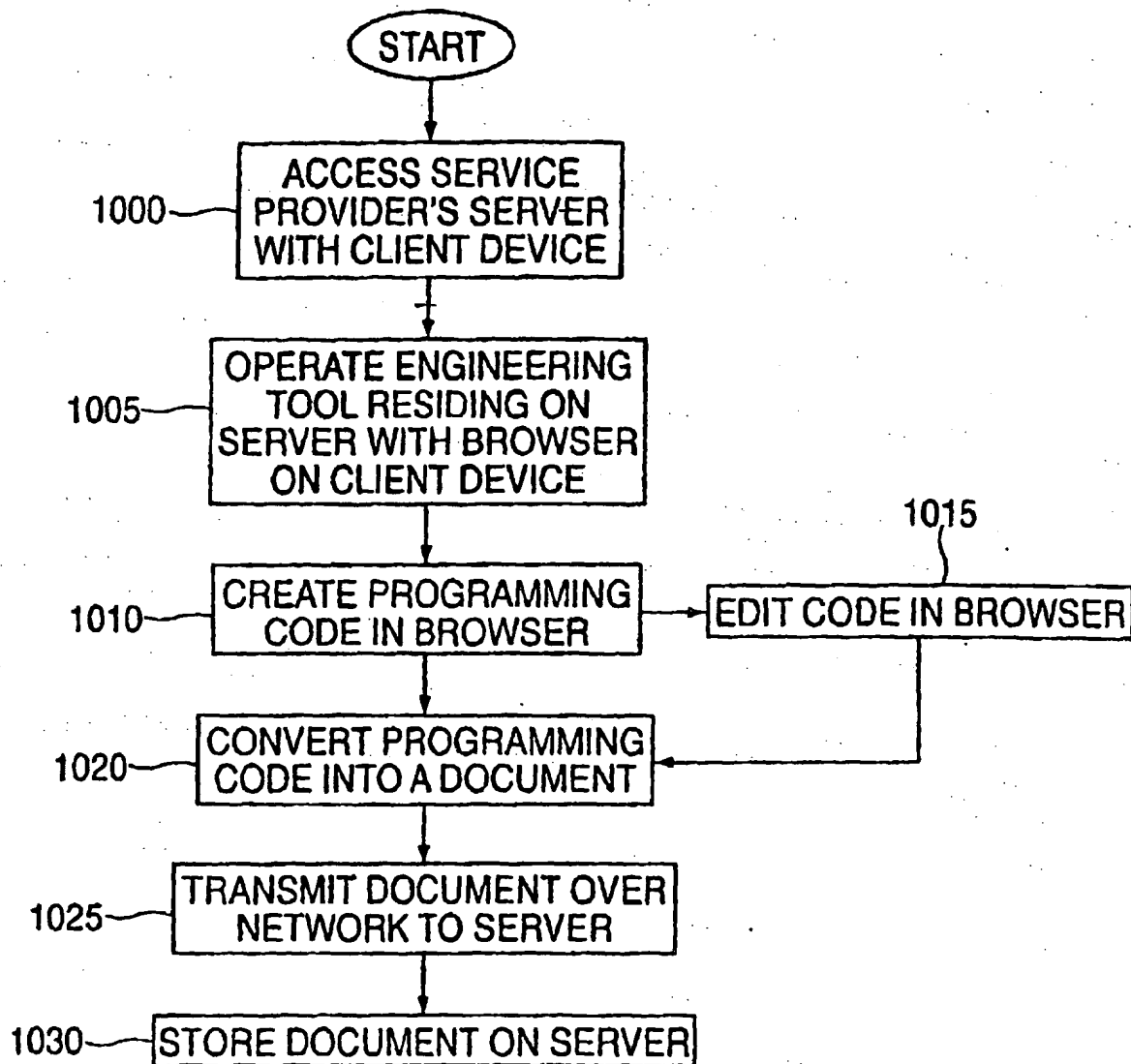


FIG. 11



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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 4 June 2003	Examiner Gardella, S
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : technological background O : non-written disclosure P : intermediate document & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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-The present search report has been drawn up for all claims				
Place of search MUNICH		Date of completion of the search 4 June 2003	Examiner Gardella, S	
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Place of search MUNICH		Date of completion of the search: 4 June 2003	Examiner Gardella, S
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons S : member of the same patent family, corresponding document	
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Application Number
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
<p>The present search report has been drawn up for all claims</p>			
Place of search:		Date of completion of the search	Examiner:
MUNICH		4 June 2003	Gardella, S
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☒ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
1-27, 37-44, 53-58
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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**LACK OF UNITY OF INVENTION
SHEET B**

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-13

A system for creating programming code comprising a server, on which an engineering tool for creating programming code is installed, and a client device, which is in communication with the server and which can access the engineering tool, whereby a memory is associated with the server for storing the programming code.

2. Claims: 14-27

A method for developing programming code with a client device, which can access an engineering tool for creating programming code residing on a server, whereby the programming code is created on the client device, converted into a document and transmitted to the server.

3. Claims: 28-30

A method for programming a programmable controller, whereby the programming code for the programmable controller is created by a client device in communication with a server on which an engineering tool for creating programming code is installed, and whereby the programmable controller is in communication with the server for downloading the programming code into the programmable controller.

4. Claims: 31-36

A method for creating programming code with a client device in communication with a server on which an engineering tool for creating programming code is installed, whereby the programming code is transferred from the client device to the server and then compiled on the server.

5. Claims: 37-40

A method for programming a programmable controller, whereby the programming code for the programmable controller is created using a server, on which an engineering tool for creating programming code is installed, and whereby the programming code, once compiled, is downloaded to the programmable controller by using a storage device and an electronic device, the latter being coupled to the storage device and interfaced with the programmable controller.



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 02 07 8612

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

6. Claims: 41-44

A method for developing programming code by means of an engineering tool residing on a server and being accessible by a client device, whereby the engineering tool is operated on the client device and the programming code is tested.

7. Claims: 45-52

A system for configuring I/O networks and devices based on a configuration editor residing on a server and adapted to be invocable by a client device over a network.

8. Claims: 53-58

A software tool for managing versions of a programming code residing on a server and being invocable by a client device over a network.

**ANNEX TO THE EUROPEAN SEARCH REPORT
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